

REMARKS

In the non-final Office Action dated September 2, 2008, the Examiner objected to claims 4-22 as being in improper form. Claim 1 was objected to because of an informality. Claims 19-22 were rejected under 35 U.S.C. §112 as being indefinite, and further under 35 U.S.C. §101 because the claimed recitation of a use results in an improper definition of a process. Claims 1-3 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. 5,264,055 to Champin, et al. (hereinafter “Champin”).

By means of the present Amendment, claims 1-2, and 4-18 have been amended. Specifically, claims 1-2 have been amended to include 13-17% vanadium. Support for the amendment can be found, at least on page 3, paragraph 3 of the English language translation of the application as filed. Claims 4-18 have been amended to correct multiple dependencies and place the claims in proper form. Claims 3 and 19-22 have been canceled. Applicants submit that no new matter has been introduced.

In view of the amendments to the claims together with the following remarks, Applicants respectfully request reconsideration and withdrawal of all grounds of objection and rejection.

Objection to Claims 4-22

Claims 4-22 were objected to as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. Claims 4-18 have been amended to correct the multiple dependencies. Claims 19-22 have been canceled. In view of the amendments, Applicants respectfully submit that the claims are in proper form and request reconsideration and withdrawal of the objection.

Objection to Claim 1

Claim 1 was objected to because of an informality. Claim 1 has been amended to correct the typographical error as per the Examiner’s instructions. In view of the amendment, reconsideration and withdrawal of the objection is respectfully requested.

Rejection of Claims 19-22 under 35 U.S.C. § 112/101

Claims 19-22 were rejected under 35 U.S.C. §112 as being indefinite, and further under 35 U.S.C. §101 because the claimed recitation of a use results in an improper

definition of a process. Claims 19-22 have been canceled thereby rendering the rejection moot.

Rejection of Claims 1-3 under 35 U.S.C. § 103(a)

Claims 1-3 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Champin. The Examiner asserts that the composition of the beta titanium alloy as claimed either overlaps or is within the ranges disclosed in Champin. See pages 4-5 of the Office Action. The Examiner concludes that a *prima facie* case of obviousness exists because a person of ordinary skill in the art at the time the invention was made could select the claimed beta titanium alloy composition from the composition disclosed by Champin because Champin teaches the same utility. See page 5 of the Office Action.

Champin fails to teach or suggest each and every element of the claims

Claims 1-2 have been amended. Support for the amendment can be found, at least on page 3, paragraph 3 of the English language translation of the application as filed. Claim 3 has been canceled.

Claims 1 and 2 as amended are directed to a beta titanium alloy containing 13-17% vanadium. The high vanadium content is important because it stabilizes the beta phase of the structure and increases the high temperature strength of the alloy. See page 2, paragraph 4 – page 3, paragraph 3 of the English language translation of the application as filed.

In contrast, Champin discloses a beta titanium alloy composition where vanadium is less than or equal to 12%. Champin discloses adding vanadium to preserve the temperature for the final working of the titanium alloy. See column 4, lines 4-9. In this regard, Champin considers no difference between vanadium and molybdenum. See *id.* Rather, vanadium is simply one of the three elements that together constitute the Mo equivalent of the alloy in Champin. See column 1, lines 50-52.

Moreover, Champin obtains the most interesting properties when the alloy contains Mo, Al, Sn and Zr. See column 4, lines 18-50. Significantly, vanadium is neither a component of the alloy nor mentioned in the explanation concerning a part made from the alloy. See *id.* Therefore, Champin fails to identify any particular characteristics or significance of the vanadium content in the alloy.

In view of the above, Applicants respectfully submit that Champin fails to teach or suggest each and every element of claims 1-2.

Modifying the composition of Champin would render the resulting alloy unsuitable for its intended purpose

Champin's objectives are: providing titanium alloy compositions with improved ductility without reducing other mechanical characteristics of the alloy. See column 1, lines 35-41. To obtain the desired properties, Champin discloses alloy compositions where the Mo equivalent ($\text{Mo} + \text{V} + \text{Cr}$) is 5-13%. See column 1, lines 44-48.

Specifically, Champin's alloy compositions contain less than or equal to 12% vanadium. See column 4, lines 4-27. Champin further discloses that when the Mo equivalent is greater than 13%, the resulting alloy lacks the desired mechanical properties, particularly good elongation or ductility. See column 3, lines 23-30.

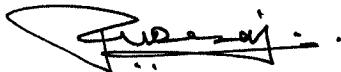
Applicants respectfully submit that if the vanadium content of Champin's alloy was modified and increased to 13-17%, and the molybdenum content modified to 0.1-3.0% as claimed by Applicants, the corresponding Mo equivalent would be greater than 13%, thereby making the modified titanium alloy unsuitable for Champin's intended purpose. That is, according to Champin a titanium alloy having a Mo equivalent of greater than 13% would lose the desired mechanical properties because the beta phase of the alloy would be too stable during cooling, causing insufficient conversion of beta phase to alpha phase at the grain joints. See id. As the modification of Champin's disclosed composition would result in an alloy unsuitable for Champin's intended purposes, Applicants respectfully submit that a person of ordinary skill in the art would not have modified Champin's composition to the alloy composition as claimed by Applicants.

In view of the above, Applicants respectfully submit that claims 1-2 are patentable over Champin because a person of ordinary skill in the art at the time the invention was made would be motivated not to modify Champin such as exceeding the disclosed vanadium content and/or exceeding the Mo equivalent. Reconsideration and withdrawal of the rejection is respectfully requested.

CONCLUSION

Applicants respectfully request favorable consideration of all pending claims. If the Examiner believes that a telephone conversation with the Applicants' agent would expedite allowance of this application, the Examiner is invited to call the undersigned agent at (617) 526-9747.

Respectfully submitted,



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